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14. ABSTRACT The 2010 Quadrennial Defense Review (QDR) stated the Department of Defense would prioritize its allocation of time, people and money into four principle objectives. The fourth objective is to "preserve and enhance the All-Volunteer Force." The military family, particularly during the uncharacteristically high operational tempo inherent in Operations Iraqi Freedom (OIF) and Enduring Freedom (OEF), is experiencing significant strain. One stressor not addressed in the QDR is Sensory Processing Disorder. SPD is a relatively new and unexplored disorder, yet pilot studies and experts have identified that a significant percentage of the population is affected. Untreated and particularly unrecognized SPD creates low self-esteem and hinders social and academic learning in grade school. Treatment for SPD is available but deployment, the transient nature of the profession, and inadequate support system hinder and possibly prohibit normalizing neurological connections in the brain of a military child.					
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TITLE:

THE CHALLENGES OF BEING A
SENSORY DYSFUNCTIONAL CHILD
IN A MILITARY FAMILY

SUBMITTED IN PARTIAL FULFILLMENT
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Executive Summary

Title: THE CHALLENGES OF BEING A SENSORY DYSFUNCTIONAL CHILD IN A MILITARY FAMILY

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Thesis: Military children with Sensory Processing Disorder (SPD) face greater challenges than non-military children contending with the same disorder; the requirements military service levies on military families including deployments, the transient nature of the profession, and inadequate support system diminish the possibility of diagnosing, managing, and treating SPD in children.

Discussion: The 2010 Quadrennial Defense Review (QDR) stated the Department of Defense would prioritize its allocation of time, people and money into four principle objectives. The fourth objective is to “preserve and enhance the All-Volunteer Force.” Although this objective is listed as the fourth and final priority, it is on par with priority objectives, such as “prevailing in today’s wars” and “preventing and deterring conflict.” The military family, particularly during the uncharacteristically high operational tempo inherent in Operations Iraqi Freedom (OIF) and Enduring Freedom (OEF), is experiencing significant strain as recognized in the realistic and candid assessment of the QDR. The consequences of these wars on the families range from “increased rates of combat stress and substance abuse to even more tragic outcomes such as increased levels of suicide and divorce.”

One stressor not addressed in the QDR is Sensory Processing Disorder. SPD is a relatively new and unexplored diagnosis, yet pilot studies and experts on the topic have identified that a significant percentage of the population is affected. Untreated and particularly unrecognized SPD creates low self-esteem and hinders social and psychological learning in grade school. A treatment and remedy for SPD is available; but, unlike a prescription drug solution, the treatment requires a consistent environment including an engaged occupational therapist and a home environment conducive to the “just right” solution. This combination ceases to exist or exist effectively in a demanding and transient military culture.

Conclusion: Military children with Sensory Processing Disorder (SPD) will face greater challenges than non-military children contending with the same disorder because of the requirements military service levies on military families including deployment, the transiency of the profession, and inadequate support system

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Preface

This exploration of Sensory Processing Disorder began with the adoption of my two children, Martha and Michael, from Liberia, West Africa. Brother and sister, they were both adopted at a young age and embraced with an expectation that there would be an adjustment period. They were perfectly healthy and normal children who had endured hardship. Their birth mother recognized that she could not give them all that she wished. In our home, they adjusted quickly but were diagnosed early with a neurological disconnect known as Sensory Processing Disorder (SPD). This research aims to both provide other military families with knowledge of Sensory Processing Disorder and to highlight the Department of Defense's need to address and adequately resource the diagnosis and treatment of SPD in children of the All-Volunteer Force.

Special thanks to the leadership and assistance of Dr. Jonathan Phillips in the research and presentation of this thesis. Additional thanks for the careful editing of Dr. Patrice Scanlon of the Leadership Skills Communication Center, Marine Corps University.

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INTRODUCTION

Military children with Sensory Processing Disorder (SPD) face greater challenges than non-military children contending with the same disorder because the requirements military service levies on military families including deployments, the transiency of the profession, and inadequate support system, diminish the possibility of diagnosing, managing, and treating SPD in children. Over the last decade, the Department of Defense (DOD) has begun to emphasize the indispensable resource of its people, both uniformed personnel and their families. One of four priorities outlined in the 2010 Quadrennial Defense Review (QDR) is to “preserve and enhance the All-Volunteer Force”.

Years of war have significantly stressed our military personnel and their families. Given the continuing need for substantial and sustained deployments in conflict zones, the Department must do all it can to take care of our people—physically and psychologically. For too long, the health of the All-Volunteer Force, the civilian workforce that supports it, and the processes by which the Department provides needed equipment and platforms have been underemphasized priorities. The prolonged wartime period since 2001 has greatly elevated their importance, and the consequences of failure have accordingly become more serious. To reflect the urgency that the Department’s leadership places on these issues, the QDR has striven to include them as core components of our policy, planning, and programming considerations.¹

Although this priority is listed as the fourth and final priority, it is on par with priority objectives, such as “prevailing in today’s wars” and “preventing and deterring conflict.” The military family, particularly during the uncharacteristically high operational tempo inherent in Operations Iraqi Freedom (OIF) and Enduring Freedom (OEF), is experiencing significant strain as recognized in the realistic and candid assessment of the QDR. The consequences of these wars on the families range from “increased rates of combat stress and substance abuse to even more tragic outcomes such as increased levels of suicide and divorce.”² It is not just the warfighter the QDR is addressing but also his or her family.

SPD is the inability of the central nervous system to use information received through the senses in order to function smoothly in daily life. The disorder prevents the brain from organizing sensations received through the senses.³ Pioneering occupational therapist and neuroscientist, Dr. A. Jean Ayers, first recognized SPD (previously known as sensory integration dysfunction) in the 1950s. Today, the disorder is relatively unknown by parents and medical professionals alike.

The nexus of military life and children who struggle with SPD requires further study and research. An unbiased but realistic approach acknowledges the impact of one upon the other and seeks to grasp the potential effects of their confluence. Mary Wertsch, a journalist and daughter of a career military father, proposes, "If someone were asked to design an environment that would be as tough as possible on family systems, it would probably look a lot like the military."⁴ Additive conditions, such as SPD, to the already unique dynamic of military life may prove exponentially demanding or possibly altogether incompatible.

Meshing the innate challenges of SPD diagnosis and treatment with the demanding and stringent military way of life first requires an in-depth understanding of SPD. Definitions, history, causes, relationship to other abnormalities, the at-risk population, and the latest research (including a proposed nosology) must be clearly articulated. After presenting the background information on SPD, a recent report highlights the unique challenges and demographics particular to military families and then superimposes them upon SPD prevalence. Post diagnosis, SPD requires a family to cope with its effects. These effects are addressed in relation to unique realities inherent in the military way of life. Lastly, successful treatment of SPD is assessed against those who administer the treatment, time as a finite resource, and the likelihood treatment is covered by insurance companies.

SPD Background and History

Sensory integration disorders have only begun to be defined during the past 35 years, but recent studies have shown significant percentages of the population to be affected. In 2000, one study examined rates of sensory processing disorders using survey data. Based on parents' perceptions, 5.3% of the kindergarten enrollment from one U.S. public school district met screening criteria for sensory processing disorders. Had the percentage of parents who neglected to turn in the survey not been included in the "negative" responses, a jump to 13.7% might be more reflective of the prevalence of SPD in children. Applying the conservative rate of 5.3% to the total number of kindergarten children in the United States, over 220,000 may have sensory processing disorders (based on U.S. Census Bureau data from Census 2000). If the rate were extended to all individuals, nearly 15 million individuals in the United States could experience sensory processing disorders.⁵

As early as 1979, Dr. Ayres estimated that five to ten percent of children in the United States have sensory processing issues significant enough to necessitate intervention.⁶ Carol Kranowitz, a school teacher and recognized expert on SPD, proposes a less scientific but perhaps more authoritative analysis. She guesstimates that the numbers are higher—more like 10 percent to 15 percent.⁷ A recent study conducted in 2009 of a representative sample of elementary school-aged children revealed findings that sensory over-responsivity (SOR), a sub-category of SPD, was prevalent in 16.5% of 7-11 years old children.⁸

Among children, prevalence estimates of Sensory Processing Disorders based on clinical experience have ranged from 5% to 10% for children without other disabilities. Estimated rates of sensory processing disorders for children with other disabilities have been derived from reliable and valid survey results and are reported to be as high as 40-88%.⁹ Though the statistics

presented are pitted against the U.S. population writ large, application of this percentage to the number of children in military families, the potential number of those affected by Sensory Processing Disorder is over 100,000. Using a less conservative but no less accurate percentage of 15, the statistic nearly triples. These numbers are significant such that not only is more research on SPD required but additional research is needed on the effect of SPD on a population where the stressful lifestyle inhibits the time or the environment to diagnose SPD.

SPD and the Neurological Continuum

All neurological disabilities fall on a continuum. The Sensory Integration Continuum by nutritionist Kelly Dorfman (see Figure 1) depicts mild sensory integration troubles near the “normal” end and severe sensory processing issues on the opposite end. A regulatory disorder such as trouble falling asleep, staying asleep, or waking up may be indicative of mild sensory disintegration. On the severe end of the scale is autism where difficulties with learning,

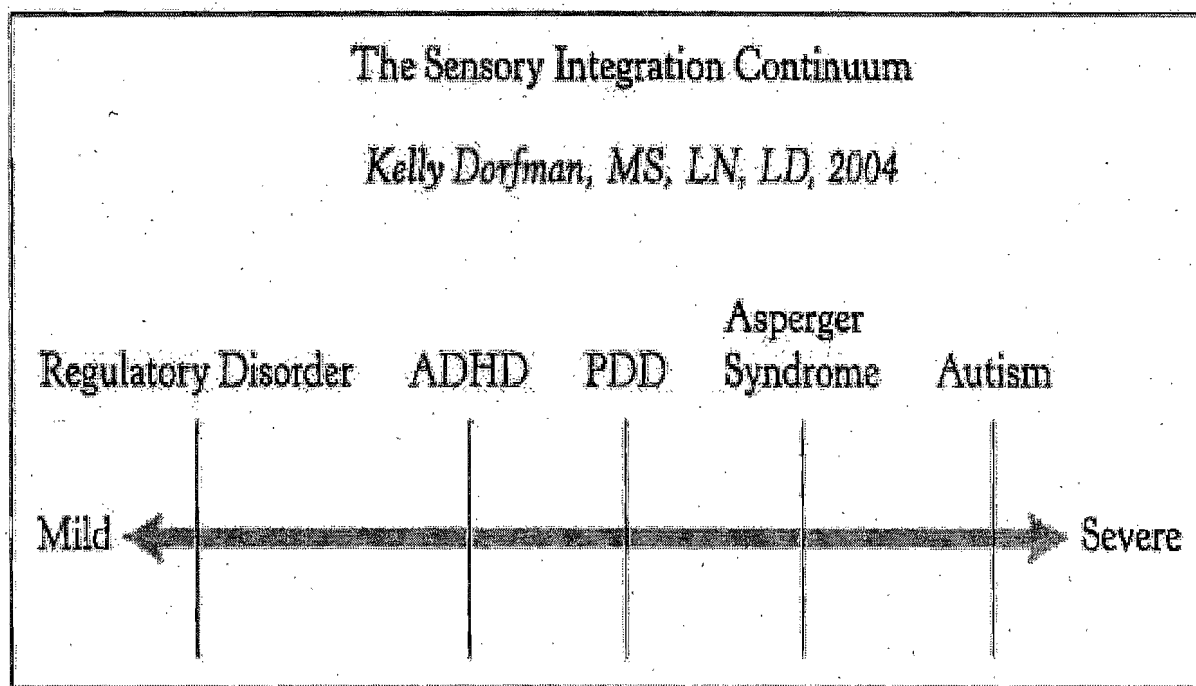


Figure 1

Source: *The Out-of-Sync Child: Recognizing and Coping with Sensory Processing Disorder* by Carol Stock Kranowitz.

communication, and relationships are acute and enduring. Between the two extremes is where diagnoses such as ADHD, Asperger syndrome, and other pervasive developmental delays (PDD) fall.¹⁰ SPD can and often does accompany the disorders, syndromes and environmental conditions on the continuum. However, it is rare that SPD is included in the diagnosis of these disorders thereby eliminating the positive effect treatment can have on normalizing sensory processing.

Definitions

Sensory Integration (SI), sometimes called sensory processing, refers to the way the nervous system receives messages from the senses and turns them into appropriate motor and behavioral responses. SI is an unconscious process of the brain which organizes information using the sense of taste, sight, hearing, touch, smell, movement, gravity and position. After sifting through the information, a properly integrating brain then gives meaning to what is experienced and permits a response that is purposeful (known as an adaptive response). Dr. Ayres postulates that SI forms the foundation for academic learning and social behavior.¹¹

In describing the development of the brain, Dr. Ayres utilized a building block approach called the "Four Levels of Sensory Integration" (see Figure 2).¹² Each new level is supported by the building blocks from the previous level. During sensory integration, the child is concerned mainly with the sensations and moving his body in relation to those sensations. The movement, an almost completely muscular, or motor, process is virtually complete by age seven. As the developmental process evolves, the child is building a sense of self. With the groundwork in place, the child will more easily learn the mental and social skills required later.¹³

When SI does not function properly, it is called Sensory Processing Disorder (SPD).

SPD is a condition that exists when sensory signals are not organized into appropriate responses.

Dr. Ayres compares the malfunction to a neurological traffic jam where some of the sensory information gets “tied up in traffic” and certain parts of the brain are deprived of the critical input that gives the individual good, precise information about the world.¹⁴ Thus, a person with

A Variation of Dr. Ayres's “Four Levels of Sensory Integration”

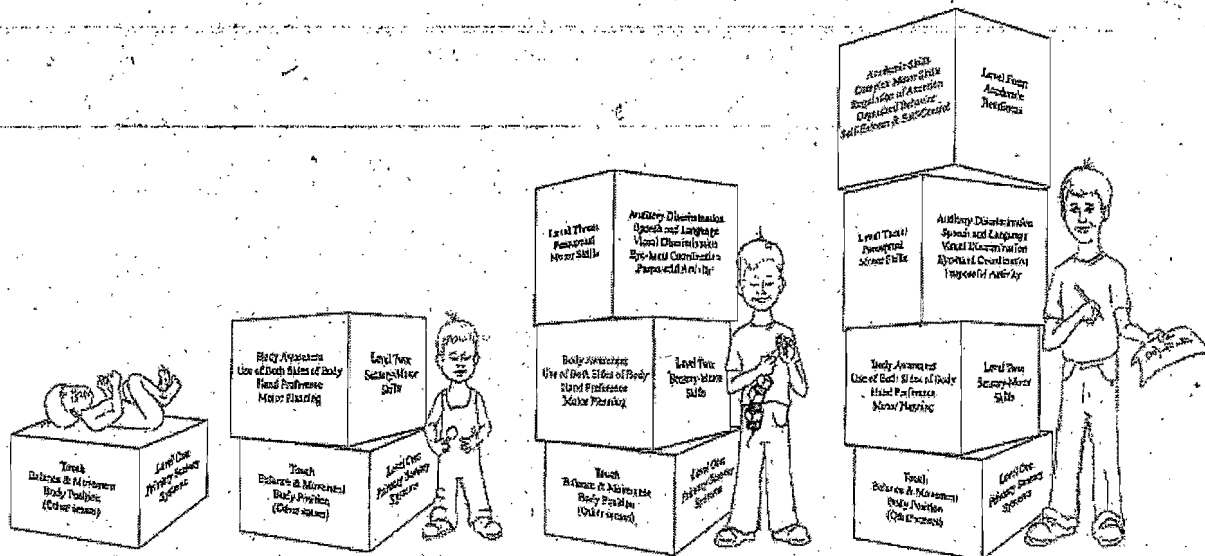


Figure 2

Source: *The Out-of-Sync Child: Recognizing and Coping with Sensory Processing Disorder* by Carol Stock Kranowitz.

SPD finds it difficult to process and act upon information received through the senses. Everyday tasks that have become second nature to the normal brain are constant and regular challenges to the unreceptive brain. Some of the manifestations of the disorder include motor clumsiness, behavioral problems, excessive fearlessness, insufficient fearfulness, anxiety, depression, and academic learning deficiencies.¹⁵

Initially, SPD may seem obscure and irrelevant because it is unfamiliar. It is not yet substantively incorporated into most health disciplines' curricula or practice.¹⁶ The relatively recent recognition and naming of SPD as a discipline—within the last 35 years—should not dissuade its validity. Recent studies, however, have concluded significant percentages of the child population possess some form of sensory dysfunction.

Causes of SPD

What causes Sensory Processing Disorder is an unanswered question for every parent of a child with SPD. Many worry they did or failed to do something that caused their child's sensory issues. Some preliminary research suggests that SPD is often inherited. Other potential contributing factors include prenatal and birth complications. Dr. Lucy Miller, one of the leading experts on SPD, asserts, "As with any developmental and/or behavioral disorder, the causes of SPD are likely to be the result of factors that are both genetic and environmental. Only with more research will it be possible to identify the role of each."¹⁷ Yet, Dr. Sharon Heller, a psychologist diagnosed with sensory defensiveness (a subtype of SPD), espouses an alternate and broader causation. She suggests, "Any trauma that disrupts the nervous system at any age can generate sensory defensiveness." Her more exhaustive list includes prenatal abuse from drugs, illness, and maternal stress; birth complications, such as asphyxia, post-birth trauma, or prematurity; head trauma; physical, sexual, or psychological abuse; chemical abuse; or post-traumatic stress disorder.¹⁸ Though causal factors of SPD are important to overall understanding of the disorder, today the focus of education, research, and advocacy is centered around the family struggling to diagnose and cope with a child exhibiting symptoms now.

Although SPD can exist in isolation, it is often comorbid with other disorders such as autism or Attention-Deficit/Hyperactivity Disorder (ADHD).¹⁹ Sometimes the two overlap or

they can be two distinct conditions. Distinguishing between the two is critical because ADHD incurs a standard treatment of behavior management including psychostimulants, while SPD is treated through therapy focused on sensory integration and a sensory diet of meaningful activities tailored to each individual. A sensory diet could be as simple as listening to music to improve the sense of hearing or might include slow rocking to stimulate the vestibular system and improve inner ear sensations. SPD symptoms vary from child to child.²⁰ Comorbidity and variation in symptoms make SPD diagnosis especially challenging.

Frustrating and sometimes preventing efforts by parents, medical professionals, researchers, and advocates of SPD to diagnose and treat this disorder is a differing lexicon throughout relevant literature. For example, Sensory Over-Responsivity, a subtype of SPD, is synonymous with at least five other terms including hypersensitivity, hyperresponsiveness, hyperactivity, oversensitivity, and sensory defensiveness.²¹ Another example includes the earlier definition for “sensory integration,” which is the clinical term. In the neuroscience field, sensory integration refers to information in the brain where one or more sensory inputs converge. Such ambiguity in terminology provides fertile ground for misdiagnosis and the more dangerous threat for improper treatment.

Neurological functions are still developing in young children up to eight or nine years of age. Because the brain is most receptive to change while it is developing, therapeutic intervention as early as possible increases the likelihood that correcting poor sensory integration can be successful.²² Dr. Ayres’ study focused on children for two primary reasons. First, she observed that SPD deprives children of the sensory information and experience they need in order to learn and develop normally. Second, identifying SPD needs early in a child’s life provides the best chance of retraining a still developing brain. Since Ayres’ initial discoveries,

the medical and scientific fields have focused their research on and testing for SPD primarily on children.²³

Integration of Sensory Inputs

The senses normally function to receive external and internal stimuli. Usually several senses integrate to alert individuals to the world around them. The five external senses include tactile, olfactory, gustatory, auditory and visual and can be consciously controlled. Three less familiar internal senses include the vestibular (inner ear), proprioceptive (muscles, joints) and interoceptive (internal organs) senses, all processed semiconsciously in the brain. Touch is the largest sensory system and when combined with the vestibular and proprioceptive senses forms the first and most important level of sensory integration (see Figure 3).²⁴ In the second level, the same senses form the basis but are further developed in order to successfully organize and execute a task unconsciously. Not until the third stage do auditory and visual cues reaffirm the realities in levels one and two. The auditory sense enables the child to speak and understand language, while the visual sense permits hand-eye coordination. At the fourth level, all the earlier sensory processes culminate in the ability to organize and concentrate, vital components of academic learning that should be well developed by the time the child enters school. Dr. Ayres concludes that the result of good neurological integration is "self-esteem, self-control, and self-confidence from feeling the body as a competent sensorimotor being."²⁵

Taxonomy for Identification of SPD

In an attempt to quantify the unlimited patterns of unusual behavior, Dr. Miller distills SPD into three classic symptom clusters that may occur independently or in combination with one another and can vary from mild to severe. The first she labels as Sensory Modulation Disorder (SMD), a difficulty with turning sensory messages into controlled behaviors that match the nature and intensity of the sensory information. Sensory Under-Responsivity, a subtype of SMD manifests itself in the following example: A child grasps a lit light bulb and because he requires a more intense or longer-lasting input, fails to remove his hand until second-degree burns develop. At the opposite end of the spectrum, the Sensory Over-Responsive child might

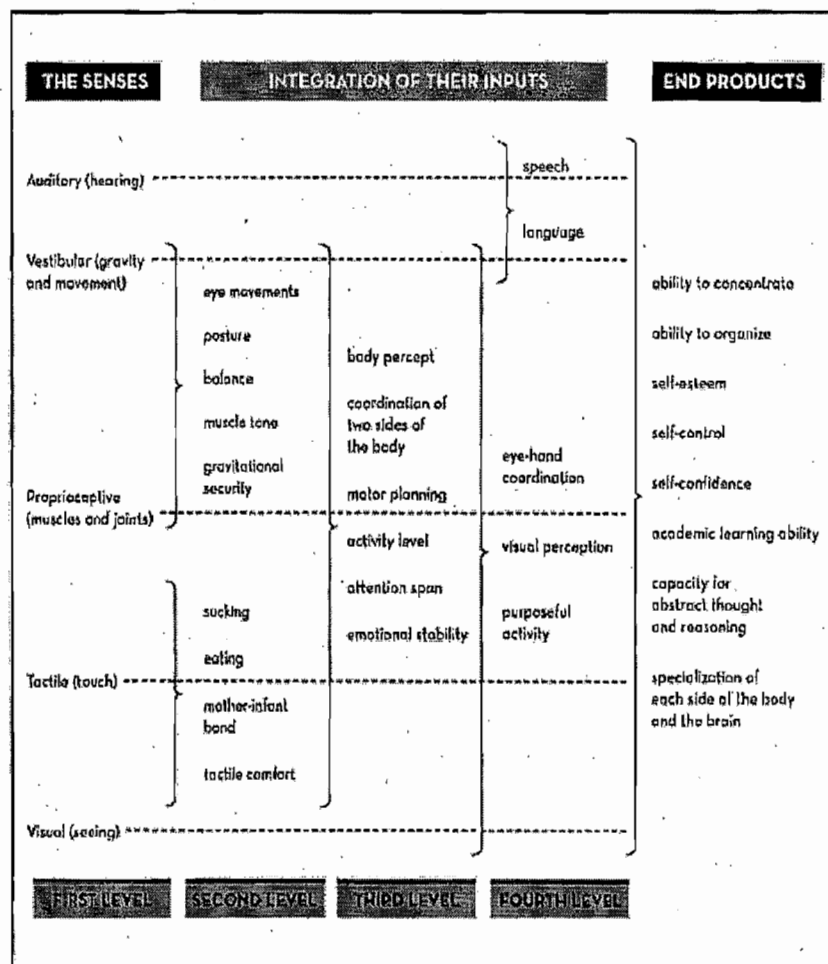


Figure 3

Source: *Sensory Integration and the Child: Understanding Hidden Sensory Challenges*.
By Anna Jean Ayres.

be uncomfortable just sitting next to a lamp emanating heat. The second cluster, Sensory-Based Motor Disorder (SBMD), is a problem stabilizing, moving, or planning a series of movements in response to sensory demands. The last cluster, Sensory Discrimination Disorder (SDD), is a problem sensing similarities and differences between sensations. Subordinate to each of these major patterns are subtypes (see Figure 4).²⁶

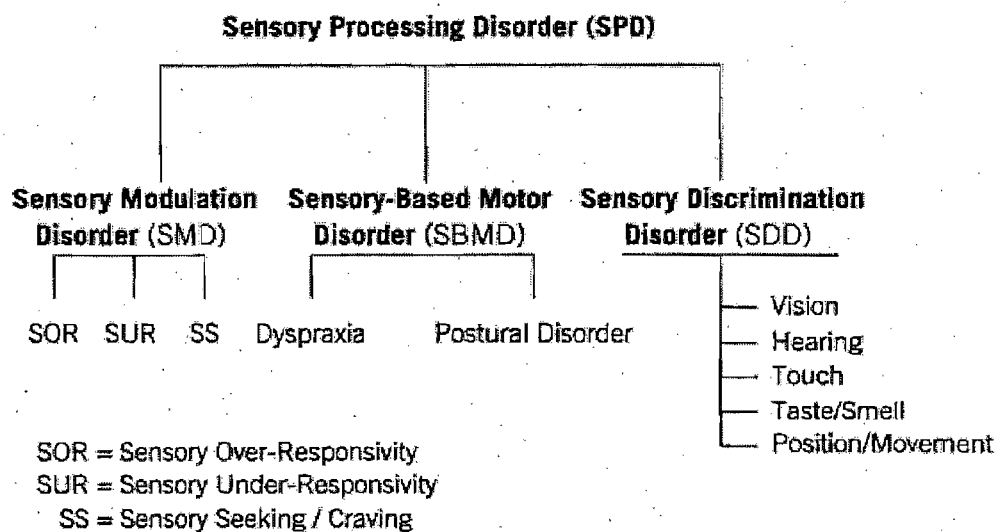


Figure 4

Source: *Sensational Kids: Hope and Help for Children with Sensory Processing Disorder (SPD)* by Lucy Jane Miller.

Dr. Miller insists that everyone experiences sensory problems occasionally and some regularly. However, it does not mean everyone has SPD. Rather, the disorder has to affect the individual's everyday life. In a recent journal publication, Dr. Miller proposed that a diagnosis of SPD be made if, and only if, the sensory processing difficulties impair daily routines or roles.²⁷

THE MILITARY TODAY

Defining the distinct challenges military families combat is not new but intensified by the current wars. In May 2010, the President of the United States, Barack Obama, directed the National Security Staff (NSS) to develop a government-wide approach to supporting military

families. The findings acknowledged America has placed considerable, sustained demands on its troops and their families and emphasized the need to address the family, home, and community challenges confronting the All-Volunteer Force. The general demographics from the report highlight the immensity of these challenges. More than 2.2 million men and women comprise America's military. Fifty-five percent of the force is married, and 43 percent have children. The 43 percent who have children equates to 1.9 million military dependent children. Of the 153,669 single parents serving in the military, just under half are active duty. There are 40,000 active duty dual-military (both mom and dad are serving concurrently) families.^{28,29}

Since September 11, 2001, more than two million troops have deployed to Iraq and Afghanistan. Of the 1.9 million children with a parent in the military, more than 700,000 of those children had one or more parent deploy.³⁰ A government-wide and perhaps more importantly a community-wide assistance effort is needed to provide an adequate support system and resources for the families remaining behind.

RECOGNIZING SPD³¹

Many parents, educators, doctors, and mental health professionals have difficulty recognizing symptoms of SPD. "When doctors do not recognize the problem, they may mistake a child's poor behavior, low self-esteem, or reluctance to participate in ordinary childhood experiences for hyperactivity, learning disabilities, or emotional problems," states Kranowitz.³² Only after these individuals have been educated about SPD can they understand that frustrating behavior is the result of an inadequately functioning nervous system. There are many look-alike symptoms that make distinguishing SPD from other disabilities a challenge. Kranowitz suggests one method to differentiate between SPD and other disabilities: "The red flags are a child's

unusual responses to touching and being touched or to moving and being moved.” She contends that low self-esteem is one of the most discerning symptoms of SPD.³³ As a child with SPD matures, he or she recognizes ordinary tasks are often beyond his or her ability and may stop trying.

As recent as June 2008, Dr. Mary W. Byrne, a Certified Pediatric Nurse Practitioner (CPNP), contends that nurse practitioners (NP) are in a unique position to test proposed SPD subtypes. NPs can contribute precise clinical descriptions of children who adhere to, as well as deviate from the criteria for SMD, SDD, and SBMD (see Figure 4). She does not purport that NPs are the only health professionals so positioned but that the absence of SPD from the NP curricula represents lost opportunities in diagnosis, treatment, education and research. Primary care providers, including family and pediatric nurse practitioners, are often the first to see children who exhibit the confusing and sometimes overlapping symptoms associated with SPD. NPs are only one subset in the list of medical professionals who are uninformed and certainly uneducated in the behavior associated with SPD diagnosis.³⁴

Military medicine is no exception to this tragedy. Most civilian CPNPs are unaware and in military medicine, they are practically non-existent. In 2009, there were only 53 active duty Certified Pediatric Nurse Practitioners in all of military medicine. Of the 116,000 active duty medical personnel, only 437 (0.38%) of that medical force is dedicated to Occupational Therapy, the primary treatment for SPD.³⁵

Sensory problems persist into adulthood, with related social and emotional difficulties. Since sensory processing disorders are neurological disorders, it would be reasonable to believe that adults who possess sensory integration issues as a child and never receive therapy will still struggle with the same challenges. Maturing into an adult does not cure their inability to control

their body or behave in a meaningful, consistent way. Instead, adults will develop strategies to compensate for their symptoms. For example, a postural disorder results in a lack of coordination and poor depth perception. The result is physical clumsiness and leads one to avoid sports and physical activity and instead seek isolation and anti-social alternatives. Such extreme lifestyle modifications ultimately deprive a child quality of life. Without treatment, SPD will remain a lifelong problem. Kranowitz contends that “The child will not grow out of Sensory Processing Disorder, but will grow into it.”³⁶

Dr. Gregory H. Gorman, in a study of military children ages three to eight, identifies an 11 percent decrease in overall health care visits when a parent is deployed.³⁷ A second study of military children two years and younger concludes that children of young, single, military parents are seen less frequently for acute and well-child care when their parent is deployed.³⁸ Of note, the findings in these two studies included children of all military branches—not just the Army and Marine families whose recent cumulative deployment time dwarfs the remaining service components—and suggest decreased visit rates could be even higher. If children in military families, both married and single parent families, are being seen less due to wartime deployments and masked behavioral disorders similar to SPD are unfamiliar to health professionals, the likelihood of early intervention remains elusive.

In contrast to an overall decrease in health care visits, Dr. Gorman’s study does note an 11 percent increase in outpatient visits for mental and behavioral health complaints in children separated from a married parent on wartime deployment. The number one diagnosis (30.1%) was for attention-deficit disorder (ADD). Adjustment disorders (14.6%), autistic disorders (12.1%), and speech and language disorders (11.0%) were the next most frequent diagnoses. Since delayed language development is an early indicator of poor sensory integration and since

ADD and autism are already on the sensory integration continuum, then the cumulative diagnosis accounts for only more than half of all accounts. Therefore, although mental and behavioral roots may in fact be true diagnoses of this disorder, it is more likely that many are suffering from unrecognized sensory integration issues than those individuals identified in Dr. Gorman's studies.^{39, 40}

Ultimately, the person in the best position to know when a child has a sensory problem is the parent, and the relentless and expedient pursuit of an accurate diagnosis should be every parent's objective. Diagnosing SPD is an inherently subjective—not objective—process and the parent is usually best poised to observe the behaviors of his or her own child. A parent should not let a health care provider unfamiliar with SPD dismiss, misinterpret, or overlook his or her observations. "Until Sensory Processing Disorder is more widely recognized and accepted in the medical and educational communities, parents will continue to be the child's best—and perhaps only—advocate, and you must persevere," urges Dr. Miller.⁴¹

The situation is compounded when one or both parents deploy. In a military family where only one parent is present to assess abnormal conditions or the regular company of an observant and supportive family network is absent, the chances of detecting the right disorder diminishes. For some parents, the pull of family and friends is so strong that during deployments 30% to 50% of families temporarily return to their hometowns to avail themselves of the support of mom and dad, siblings, and close friends.⁴² For other service members, family and friend support networks may not exist at home or elsewhere.

The statistics on military families presented in this paper promote an acute awareness of the stressors they routinely confront. Overlaying these statistics on the prevalence percentages of SPD in a population suggest a large number of affected children. Thus, the difficulty, if not the

improbability, of recognizing SPD in children becomes obvious. If SPD is recognized, the subsequent challenge becomes successfully coping with the varied subsets of the disorder.

COPING WITH SPD

Military families must cope with the extraordinary pressures of a very stringent and demanding way of life: an authoritarian system with a lack of autonomy and intrusive style; financial stress; multiple tours of duty that take father, mother, or both away from the family for months at a time; frequent relocations; inaccessibility of a former supportive network of relatives and friends; and the pervasive possibility of injury or death.⁴³ Yet, military parents employ exhaustive efforts to mitigate these pressures. Their child's health and education rank high on the priority scale but the additional SPD barrier jeopardizes the necessary foundation for academic learning and social behavior.

Sensory Over-Responsivity, a subtype of Sensory Modulating Disorder, is the term for sensory input that inhibits the child's ability to cope. Loud noises, crowded settings, and simple changes to everyday routine overwhelm the over-responsive child. As Dr. Miller asserts, "Most children with over-responsivity are enormously challenged by transitions."⁴⁴ Transitions can vary from moving to a foreign country to simply changing the sheets; both have a significant and similar impact on an over-responsive child. Children with this disorder avoid change and when it cannot be stopped, a fight, flight, or freeze response consumes them. This is the case for children even in their familiar and "normal" environment. Changing homes, friends, and schools are the big changes and eradicate all sense of normalcy. Yet, even little changes such as a new bedroom, tile instead of carpet, or the whirring of an air conditioner versus a fan create the same angst for these children as do the big changes. Thus, considering families of military members

may experience these life changes three, four or maybe ten times in a typical 20-year career, the normal resilience ascribed to military families is not attainable for a sensory challenged child. If left untreated, children with over-responsivity will develop unhealthy coping mechanisms that continue into adulthood.

Most parents want their children to excel in life, particularly in their education. Military parents are no exception, citing the quality of their children's education as one of the most important criteria when selecting a place to live.⁴⁵ A recent survey found 34 percent of these parents are "less or not confident" that their children's school is responsive to the unique aspects of military life.⁴⁶ Schools unresponsive to military life may also be unresponsive or even unable to support a sensory dysfunctional child. A child with SPD needs an educational system that understands his or her needs and reacts with the pre-requisite knowledge that children with SPD who misbehave do so because they have a neurological disorder and they cannot help it.

Combat injuries and reintegration (the reunification and adjustment period after deployment where the service member is integrated back into the family) are two additional stressors facing military families. Injuries range from Post Traumatic Stress Disorder (PTSD) occurring in 9% of returning warriors to traumatic brain injury (TBI) experienced by more than 19% of combat veterans.⁴⁷ Given the severity of dad's injury, dad's treatment is likely to take precedence over a child's. Regarding reintegration, a 2005 survey indicated three of four families believe the most stressful part of a deployment is the first three months after a service member returns home.⁴⁸

Parental deployment is life-changing enough to a sensory under-responsive child, but the deployed parent's return three to fifteen months later is another drastic change. Another deployment may occur in as few as twelve months or orders to relocate earlier than the normal

three-year rotation may be issued to the military parent. Constant, dramatic change is the reality for military families, which is in direct contrast to the consistency the disordered child craves.

Frequent relocation increases the stress and tests the resolve of all military families.

Military families moved an average of three times in the past five years. In comparison, the US population moves on average once every five years.⁴⁹ Additional moves become increasingly disruptive and difficult, especially as children mature into the adolescent and teenage years. The uncertainties associated with every move are pervasive and exhausting. The answers to important questions may consume the mind of a sensory dysfunctional child. Questions may include: Where will we live? What school will I go to? Will the other kids accept me? Will the basketball team be as good as the one I am on now? Who will be my new occupational therapist? Is my therapist going to be as fun as the one I have now? Parents need to understand the importance ascribed to these questions and spend the time and effort required to establish an environment that lessens the effect of SPD on their child's daily routine.

The last question is one of the most important because when the child experiences challenges and is able to respond effectively, he has fun. Fun then becomes the child's word for sensory integration.⁵⁰ Integrating his senses is something that he craves. He wants to accomplish new feats so he can attempt the next, often more difficult, challenge. He cannot be forced there through the innate disruptions of multiple transitions but instead needs the incremental building block approach where he determines when he has mastered the previous steps.

The child whose brain does not organize sensations well is also apt to have trouble making friends and keeping them. Many children with poor sensory integration feel helpless and anxious in school. Compounding a sensory challenged child's ability to make friends is the

requirement to do it over and over, which supports the adage that “practice makes perfect” but is contrary to a sensory challenged child because the problem occurs in brain processes that are below his level of consciousness and control. Insisting that he control his behavior and get along with his classmates and teachers is useless; and, in fact, adults often make the child’s problem worse by making demands he cannot handle.⁵¹ Making demands and expecting adherence is the hallmark of an authoritarian system, which is likely to be exercised in the home of a military parent.

SPD REMEDY (TREATMENT)

Treatment for SPD is numerous and varied. Today, however, the primary treatment most successfully employed is occupational therapy. Occupational therapy with a sensory integration approach (OT/SI) is designed to guide children who have trouble processing sensory information. A therapist is guided by a set of principles that are designed to elicit an adaptive

Table 1. Key Principles of the Sensory Integrative Approach

Principle	Description
Just Right Challenge	The therapist creates playful activities with achievable challenges; the activities incorporate a challenge but the child is always successful.
The Adaptive Response	In response to the Just Right Challenge, the child adapts their behavior with new and useful strategies, thus furthering development
Active Engagement	The therapist’s artful creation of challenging, yet playful, sensory-rich environments entice the child to participate actively in play; the methods of play incorporate new and advanced abilities that increase the child’s repertoire of skills and processing.
Child Directed	The therapist constantly observes the child’s behavior and reads their behavioral cues, thus following the child’s lead or suggestions. The therapist uses the child’s cues to create enticing, sensory-rich activities.

Figure 5

Source: “Occupational Therapy Using a Sensory Integrative Approach for Children with Developmental Disabilities.” by Reseann C. Shaaf and Lucy Jane Miller.

response in the child (see Figure 5).⁵² The “Just Right Challenge” is an operational therapy principle in which the child is intrigued by creative and playful activities and the therapist cues off the child’s lead to continue stimulation of more than one sensory system simultaneously. The result of each activity should find the child nearly always successful in the activity. These principles can and are intended to be reinforced at home. As in the diagnosis of SPD, parents are key contributors to its successful treatment.

A commitment to professional occupational therapy, building a home environment that provides challenges similar to therapy, and parental expertise in treating SPD require vast investments of time. Although unquestionably worthwhile investments, time is one luxury not afforded to children with SPD. As stated earlier, the brain is still developing until eight or nine years of age, and the window of opportunity to implement an effective “sensory diet” is already limited. It is further reduced by time consuming requirements such as relocation and deployment. From selling the old house to unpacking at the new one, relocation devours the attention and resources of many families. Additionally, deployment obliges the remaining parent to assume both shares of the once distributed responsibilities and often robs the SPD child of an essential “sensory diet”.

How much therapy is enough for a child with a mild case of Sensory Over-Responsivity? Is more therapy required or even sufficient for the child who has an extreme case of Sensory Under-Responsivity with Postural Disorder, known as a combination disorder? The remedy, like the diagnosis, is also subjective. At some point, properly integrated senses permit a purposeful response and the foundation for academic learning and social behavior mirrors that of a normal child. That point is discerned only by an involved and integrated parent-therapist team. Only

when the sensory problems cease to impair the daily routine has the requisite amount of cure been administered.

Another potential inhibitor for providing treatment to a child diagnosed with SPD is an insurance company that refuses coverage for occupational therapy. Because SPD and its various subtypes have not yet been officially recognized and included in the *Diagnostic and Statistical Manual*, many insurance companies have elected not to cover sensory integration therapy. Although some progress has been made for including SPD into three diagnostic classification references (the *Diagnostic Classification of Mental Health and Developmental Disorders of Infancy and Early Childhood, Revised*, the *Diagnostic Manual for Infancy and Early Childhood*, and the *Psychodynamic Diagnostic Manual*), coverage is limited. Fortunately, TRICARE, the military insurance provider, does afford coverage for Sensory Processing Disorder.

CONCLUSION

Sensory integration disorders are not currently included in the DSM IV standard terminology.^{53,54} Leading experts and staunch advocates in support of diagnostic recognition of SPD have and continue to lobby exhaustively for its inclusion in the updated DSM V, set for release in 2013. As of this writing, SPD will not be included as a separate diagnosis in the DSM V.⁵⁵

In upholding its commitment to preserve and enhance the all-volunteer force, the DOD has implemented useful and timely policies and programs to strengthen families but needs to continue to address key issues facing military families, particularly families of children with SPD. In January 2011, President Barack Obama acknowledged a need for a coordinated government-wide approach and pledged to provide the resources to meet an emerging list of

needs. His first priority pledges to enhance the well-being and psychological health of the military family. The means to achieve these ends starts by increasing behavioral health care services through prevention-based alternatives and integrating community-based services.⁵⁶ This promise, when combined with an increased awareness by both the civilian and military communities of the prevalence of sensory integration challenges, may serve to help military families diagnose, manage, and remedy SPD. Until then, military children with Sensory Processing Disorder (SPD) will face greater challenges than non-military children contending with the same disorder because of the requirements military service levies on military families including deployment, the transiency of the profession, and inadequate support system.

Additive conditions, such as SPD, to the already unique dynamic of military life are not merely linearly but exponentially challenging. However, military families coping with SPD in a child is not impossible. Armed with an understanding of and preparation for the preceding hurdles can help military families tackle SPD with knowledge and optimism. Efforts within military circles, as well as the civilian community, must be renewed and sustained if the preservation and enhancement of the All-Volunteer Force is to become a reality. Further study of SPD and its effects on undiagnosed or untreated active duty military adults would also help increase awareness of SPD as a common disability and also further the preservation and enhancement of the All-Volunteer Force.

Glossary

ADD—Attention-Deficit Disorder

ADHD—Attention-Deficit/Hyperactivity Disorder

CPNP—Certified Pediatric Nurse Practitioner

DSM IV/V—Diagnostic and Statistical Manual IV/V

FRO—Family Readiness Officer

LD—Learning Disability

NP—Nurse Practitioner

OEF—Operation Enduring Freedom

OIF—Operation Iraqi Freedom

OT/SI—Occupation Therapy with a Sensory Integration approach

PDD—Pervasive Developmental Delay

PTSD—Post Traumatic Stress Disorder

QDR—Quadrennial Defense Review

SBMD—Sensory-Based Motor Disorder

SDD—Sensory Discrimination Disorder

SI—Sensory Integration

SMD—Sensory Modulation Disorder

SOR—Sensory-Over-Responsivity

SPD—Sensory Processing Disorder

SUR—Sensory-Under-Responsivity

TBI—Traumatic Brain Injury

Endnotes

¹ U.S. Department of Defense, *Quadrennial Defense Review Report*, (Washington, DC: U.S. Department of Defense, February 2010), vi-vii.

² *Quadrennial Defense Review Report*, 39.

³ Carol Stock Kranowitz, *The Out of Sync Child: Recognizing and Coping with Sensory Processing Disorder* (New York: Skylight Press, 2005), 9, 11.

⁴ Lynn K. Hall, *Counseling Military Families: What Mental Health Professionals Need to Know* (New York: Routledge, 2008), x.

⁵ Roianne R. Ahn, Lucy Jane Miller, Sharon Milberger, and Daniel N. McIntosh. "Prevalence of Parents' Perceptions of Sensory Processing Disorders Among Kindergarten Children." *The American Journal of Occupational Therapy* 58, (2004): 291.

⁶ Kranowitz, 39.

⁷ Kranowitz, 39.

⁸ A. Ben-Sasson, A. S. Carter, and M. J. Briggs-Gowan. "Sensory Over-Responsivity in Elementary School: Prevalence and Social-Emotional Correlates." *Journal of the American Academy of Child and Adolescent Psychiatry* 37, (2009): 713.

⁹ Ahn, 287.

¹⁰ Kranowitz, 22, 38-39.

¹¹ Anna Jean Ayres, *Sensory Integration and the Child: Understanding Hidden Sensory Challenges* (Los Angeles: Western Psychological Services, 2005), 5.

¹² Kranowitz, 67.

¹³ Ayres, 7-8.

¹⁴ Ayres, 47.

¹⁵ Sensory Processing Disorder Foundation, <http://www.spdfoundation.net/about-sensory-processing-disorder.html> (accessed 27 March, 2011).

¹⁶ Mary W. Byrne, "Sensory Processing Disorder: Any of a Nurse Practitioner's Business?" *American Academy of Nurse Practitioners* 21, (2009): 314.

¹⁷ Sensory Processing Disorder Foundation, <http://www.spdfoundation.net/about-sensory-processing-disorder.html> (accessed 27 March, 2011).

¹⁸ Sharon Heller, *Too Loud, Too Bright, Too Fast, Too Tight: What to do if You Are Sensory Defensive in an Overstimulating World* (New York: Harper Collins, 2002), 9.

¹⁹ Attention Deficit Disorder was renamed Attention-Deficit/Hyperactivity Disorder (ADHD) in *Diagnostic and Statistical Manual-IV*. However, the term ADD is still widely used and is useful as an overarching term for a disorder in which attention deficit with hyperactivity is only one of three subtypes.

²⁰ Kranowitz, 22, 29-30.

²¹ Kranowitz, 70.

²² Lucy Jane Miller, *Sensational Kids: Hope and Help for Children with Sensory Processing Disorder (SPD)*. (New York: G. P. Putnam's Sons, 2006), 45.

²³ Ayers, 7-8.

²⁴ Ayres, 55.

²⁵ Ayres, 54.

²⁶ Miller, 11-12.

²⁷ Lucy Jane Miller, Marie Anzalone, Shelly Lane, Sharon Cermak, and Elizabeth Osten. "Concept Evolution in Sensory Integration: A Proposed Nosology for Diagnosis." *The American Journal of Occupational Therapy* 61, no. 2 (March/April 2007): 136.

²⁸ "Strengthening our Military Families: Meeting America's Commitment", January 2011, Interagency Policy Committee, 13.

²⁹ Figures are approximate as of November, 2010.

³⁰ "Strengthening our Military Families: Meeting America's Commitment", 1, 7.

³¹ For this paper, the recognition of SPD is used synonymously with the diagnosis of SPD. Because SPD is relatively unknown, recognition of the symptoms as definitive of SPD is often as challenging as an official diagnosis.

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- ³² Kranowitz, xxiv.
- ³³ Kranowitz, 21, 28.
- ³⁴ Byrne, 314.
- ³⁵ Brenda S. Farrell, "Military Personnel: Enhanced Collaboration and Process Improvements Needed for Determining Military Treatment Facility Medical Personnel Requirements," Government Accountability Office, GAO-10-696: 6, 31.
- ³⁶ Kranowitz, 48.
- ³⁷ Gregory H. Gorman, Matilda Eide, and Elizabeth Hisle-Gorman. "Wartime Military Deployment and Increased Pediatric Mental and Behavioral Health Complaints." *Pediatrics* 126, (2010): 1062.
- ³⁸ Matilda Eide, Gregory Gorman, and Elizabeth Hisle-Gorman. "Effects of Parental Military Deployment on Pediatric Outpatient and Well-Child Visit Rates." *Pediatrics* 126, (2010): 22.
- ³⁹ Ayres, 10.
- ⁴⁰ Gorman, 1060-1061.
- ⁴¹ Miller, 20.
- ⁴² Flake, 271.
- ⁴³ Hall, x.
- ⁴⁴ Miller, 23.
- ⁴⁵ "Strengthening our Military Families: Meeting America's Commitment", 13.
- ⁴⁶ Blue Star Families, *2010 Military Family Lifestyle Survey*. [May 2010]
- ⁴⁷ "Strengthening our Military Families: Meeting America's Commitment", 7.
- ⁴⁸ Flake, 272.
- ⁴⁹ Flake, 276.
- ⁵⁰ Ayres, 8.
- ⁵¹ Ayres, 11-12.
- ⁵² Roseann C. Schaaf and Lucy Jane Miller. "Occupational Therapy Using a Sensory Integrative Approach for Children with Developmental Disabilities." *Mental Retardation and Developmental Disabilities Research Reviews* 11 (2005): 143-148. At this time, the OT/SI approach has been accepted by the therapeutic community. However, the scientific community has not widely accepted the OT/SI approach because little empirical data supports the thesis.
- ⁵³ American Psychiatric Association. *Diagnostic and Statistical Manual of Mental Disorders* (DSM-IV-TR). Washington, DC: Author, 2000.
- ⁵⁴ Byrne, 314.
- ⁵⁵ Sensory Processing Disorder Foundation, <http://www.spdfoundation.net/dsmv.html> (accessed 27 March, 2011).
- ⁵⁶ "Strengthening our Military Families: Meeting America's Commitment", 7-8.

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